Research Paper | Economics | E-ISSN No : 2454-9916 | Volume : 4 | Issue : 11 | Nov 2018

INDIA'S KNOWLEDGE ECONOMY IN THE GLOBAL CONTEXT

Dr. Mukesh Gareja

Asso. Prof. in Economics, Shri. K. H. Madhvani Arts & Com. College, Porbandar, India.

INTRODUCTION:
The rise of India as an emerging economic power is increasingly in the global headlines. This is due in part to its large population and impressive growth rates, not just in the past three years, but the past decade and a half. However, it is also due to India's increasing scientific and technological capability.

KEY GLOBAL TRENDS:
India's rise needs to be seen in the broader context of some of the broader global trends affecting growth and competitiveness.

One of these is the increased importance of knowledge. The world is in the midst of what could be considered a knowledge revolution. It is not that knowledge has not always been important for growth and competitiveness, but that there has been a speeding up in the rate of creation and dissemination of knowledge.

A second key trend is an increase in globalization. The share of goods and services that are traded as a percentage of global GDP has increased from 38 percent in 1990 to 48 percent in 2004. This is the result of greater trade liberalization worldwide. However, it is also the result of reductions in transportation and communications costs that result from rapid advances in technology.

A third and related trend is that knowledge markets have become global. Products and services are increasingly designed and developed for global markets in order to recoup the research and development (R&D) investments. In addition, R&D itself is becoming increasingly globalized. This is not just an increase in joint authorship of technical papers by teams from different countries, or joint patenting. An increasing amount of R&D is now being done by multinationals in countries other than their respective home countries, and not just among developed countries. India and China in particular are also benefiting from this trend as they are becoming hosts to many R&D centers set up by multinational companies, as well.

In addition, thanks to the reduction in communications costs, there is an increasing trend to source many knowledge-intensive services in lower-cost developing countries. This is part of what is driving global off shoring of knowledge-intensive services, such as back office functions, as well as engineering design, and even contract innovation services.

The result of these trends is that innovation and high-level skills are becoming the most important determinants of competitiveness. Thus countries such as India need to develop more explicit strategies to take advantage of the rapid creation and dissemination of knowledge and to develop their own stronger innovation capabilities.

INDIA AS A RISING ECONOMIC POWER:
India is a rising economic power, but one that has not yet integrated very much with the global economy. It has many strengths, but it also will be facing many challenges in the increasingly globalized, competitive, and fast changing global economy. India's key strengths are its large domestic market, its young and growing population, a strong private sector with experience in market institutions, and a well-developed legal and financial system. In addition, from the perspective of the knowledge economy, another source of strength is a large critical mass of highly trained English-speaking engineers, business people, scientists, and other professionals, who have been the dynamo behind the growth of the high-value service sector.

However, India is still a poor developing country. Its per capita income in 2004 was just $674 and with a billion people, it accounted for 17 percent of the world's population. Its share of global GDP is less than 2 percent (using nominal exchange rates), and just 1 percent of world trade. Moreover, 80 percent of its population lives on less that $2 a day, and 71 percent is rural, with about 60 percent of the total labor force still engaged in agriculture.

INDIA IN THE GLOBAL KNOWLEDGE ECONOMY:
The World Bank Institute has developed a useful benchmarking tool that helps to rank countries in terms of their readiness to use knowledge for development. The methodology consists of examining a country's rank ordering in four pillars based on a series of 20 indicators in each pillar. The four pillars are:

1. an economic and institutional regime that provides incentives for the efficient use of existing and new knowledge and the flourishing of entrepreneurship;
2. an educated and skilled population that can create, share, and use knowledge well;
3. a dynamic information infrastructure that can facilitate the effective communication, dissemination, and processing of information;
4. an efficient innovation system of firms, research centers, universities, consultants, and other organizations that can tap into the growing stock of global knowledge, assimilate and adapt it to local needs, and create new knowledge.

Key Issues in the Economic and Institutional Regime:
The economic and institutional regime is an important aspect of a country's ability to take advantage of knowledge. It includes the overall regime of policies and institutions that give an economy the incentives to improve efficiency and the flexibility to redeploy capital and labor to their most productive use. It also includes the rule of law and government effectiveness. As was seen from the summary variables in the KAM basic scorecard, this is the second weakest of the four pillars of the knowledge economy in India, and one in which India has actually lost relative standing with respect to the rest of the world. Based on a more detailed analysis, including surveys of foreign and Indian businessmen, some of the key issues that have to be improved in the economic and institutional regime include:

Key Issues in Education and Training:
Educated and skilled persons underlie the ability of an economy to take advantage of knowledge and to create new knowledge to improve economic performance and welfare. Key elements of education and training for the knowledge economy include the level and quality of educational attainment as well as the relevance for the needs of a rapidly changing economy such as India. This is also a pillar in which India has slipped compared to its relative global ranking in 1995. Some of the key issues that India needs to address in education and training include:

- expanding quality basic and secondary education to empower India's rapidly growing young population;
- raising the quality and supply of higher education institutions, not just the Indian Institutes of Technology and the Indian Institutes of Management;
- embracing the contribution of private providers of education and training by relaxing bureaucratic hurdles and putting in place better accreditation systems;
- increasing university–industry partnerships to ensure consistency between education, research, and the needs of the economy;
- establishing partnerships between Indian and foreign universities to provide internationally recognized credentials;
- using ICT to meet the double goals of expanding access and improving the quality of education;
- investing in flexible, cost-effective job training programs that are able to adapt quickly to new and changing skill demands.

Key Issues in ICT:
Advances in information processing, storage, and dissemination are making it possible to improve efficiency of virtually all information-intensive activities and to reduce transaction costs of many economic activities. Some of the key elements to make effective use of the potential of this new information infrastructure are the regulatory regime for the information and telecommunications industries and the skills to use the technologies, software, and applications. Some of the key issues that need to be improved in India include:

- boosting ICT penetration and reducing/rationalizing tariffs on hardware and software imports;
- massively enhancing ICT literacy and skills;
- increasing the use of ICT as a competitive tool to improve efficiency of production and marketing (supply chain management, logistics, etc.);
- moving up the value chain in IT by developing high-value products through R&D, improving the quality of products and services, marketing of products and services, and further positioning the "India" brand name;
- launching suitable incentives to promote IT applications for the domestic economy, including local strengthening partnerships between government agencies, research/ academic institutions, private companies, and nongovernmental organizations (NGOs) to ramp up ICT infrastructure and applications;
- developing/scaling up, through joint public–private partnerships, ICT applications, community radio, smart cards, Internet, satellite communications, etc.

STRENGTHENING INDIA'S INNOVATION SYSTEM:
This section starts by placing India in the international context using the KAM innovation pillar as well as other data. The next subsection develops a brief framework for analyzing a developing country's innovation system. This framework is then used to assess India's innovation system. The last section then presents a matrix of key issues that need to be addressed to improve India's innovation system.

Broad Assessment of India's Position in Innovation:
This assessment is based on one measure of R&D input (scientists and engineers) and two measures of output (scientific and technical publications, and patents in the United States). By this narrow measure linked primarily to formal R&D, India is in the top 13th percentile of the global distribution of countries. Furthermore, it has improved its position relative to the rest of the world.

Clearly, because of India's large critical mass of scientists and engineers engaged in R&D, India is a major player in global R&D. However, it is instructive to compare India's share of the world in scientists and engineers, scientific and technical publications, and patents with its share of population and GDP measured in nominal as well as PPP exchange rates . India's share of scientists and engineers in R&D is much lower than its share of population or GDP in PPP terms, although it is slightly higher than its GDP share in nominal terms. Its share of scientific and technical publications is smaller than its share of GDP in nominal terms. Its share of all patents in the United States is extremely small (only 0.2 percent—too small to be in the figure). One quick conclusion from this comparison is that India is stronger in its basic scientific inputs that in its outputs of basic scientific and technical knowledge, since its share of publications is smaller than its share of personnel engaged in R&D. It is even weaker in turning that scientific output into commercially relevant knowledge,

Key Areas for Strengthening India's Innovation System:
Given the foregoing analysis, there is much that India needs to do to strengthen its innovation system. Time is of the essence given the trends and the increasing competitive demands of the global system, and the strategies of other countries—China in particular.

Table 1 summarizes in matrix form the main assessments made in the preceding section and proposes some areas for policy reform. The list is quite extensive. Furthermore, some of the proposed reforms get into areas where there may be considerable opposition and internal debate in India from various groups. Some of this is based on concerns about national sovereignty and ideology. Others are based on the concerns of groups with vested interests who want to maintain their position vis a vis new entrants, domestic as well as foreign. Thus, in a large complex democracy such as India, there will necessarily be a lot of debate. This process will take time. It is hoped that the analysis presented here can contribute to that debate and that concrete policies and investments will soon emerge.

Table 1: Summary of assessment and of areas in need of improvement

	Current Situation in India	Areas for Improvement
	Creating knowledge domestically through formal R&D	
Government	Low public R&D expenditures relative to GDP	Increase public expenditures on R&D
	Low efficiency of public R&D expenditures	Improve the allocation and efficient use of public R&D
	Little transfer of knowledge created in public sector to productive sector	Strengthen institutions to commercialize knowledge
Indian firms	Still low but rising spending by productive firms	Encourage more R&D spending by productive firms through: • promotion campaign on business advantages of R&D spending • more matching grants for R&D done by consortia • better fiscal incentives for more R&D spending
MNCs	Rapid increase in MNC R&D centers in India is creating shortages and increasing costs of scientific and technical personnel	Increase the supply of high-level scientific and engineering talent
	Creating knowledge domestically through informal efforts	
Firms, formal and informal sector	Significant informal activity takes place, but there is little information or support	
Grassroots innovation and traditional knowledge, including NGOs and other networks	India has one of world's largest grassroots innovation systems. However, there have been problems with scaling up and disseminating the innovations that come through this system	Strengthen institutional support through: • training in techno entrepreneurship • laboratories for developing, piloting, and testing prototypes • funding for scale-up and dissemination
	Acquiring knowledge from abroad through explicit contracts	
–FDI	FDI inflows into India are still relatively low in spite of increasing liberalization	Open sectors further to foreign investment.
	Foreigners are turned off by bureaucratic hurdles, red tape, corruption, poor infrastructure, and concerns about IPR enforcement	Improve the investment climate by reducing red tape and corruption and improving physical infrastructure and IPR enforcementImprove the investment climate by reducing red tape and corruption and improving physical infrastructure and IPR enforcement

Strategic alliances	Beginning of some strategic alliances between foreign companies and domestic companies and research institutes	Increase strategic alliances by private and public sector. Requires more proactive marketing strategy
–Technology licensing	India has not made much use of foreign technology licensing	Increase formal technology licensing
Acquiring knowledge from abroad informally		
–Through Trade	India is still one of most closed economies of the world structurally (share of imports and exports in GDP) and in terms of tariff and nontariff barriers	Open economy further to trade by reducing tariff and nontariff barriers
–Through foreign education and training	Large numbers of Indian students go for tertiary education abroad. Many stay abroad. Some are starting to return	Develop good system to track students who go abroad for study.
		Launch public and private campaigns to attract them back by improving local salaries and working conditions
–Through more extensive use of Indian diaspora	There have been greater attempts to tap the Indian diaspora	Strengthen attempts to tap Indian diaspora
–Through technical literature	Access to foreign technical literature is limited by costs of books, technical publications, and databases	Exploit economies of scale in subscriptions through digital libraries and ICT network use
Through Internet	There is considerable access for more sophisticated users in large firms, universities, and research institutes, but this is constrained by low bandwidth even at high end, and there is still a low penetration rate of the Internet for the masses	Set up high-capacity research education network infrastructure
		Extend mass spread of Internet penetration by lowering costs, and set up multiple-use Internet kiosks and service centers

CONCLUSION:

In sum, India has made great progress but faces daunting challenges. India has many strengths, particularly a young and growing population, experience and institutions of a market economy, a critical mass of entrepreneurs and highly skilled professionals, and a large public research infrastructure. It has the potential to leverage its strengths to improve its competitiveness and welfare. It faces many internal challenges as well as a much more demanding and competitive international environment.